ICS AND DISASTERS

This presentation is the last one of a two-day conference, delivered April 11, 2021.

Introduction

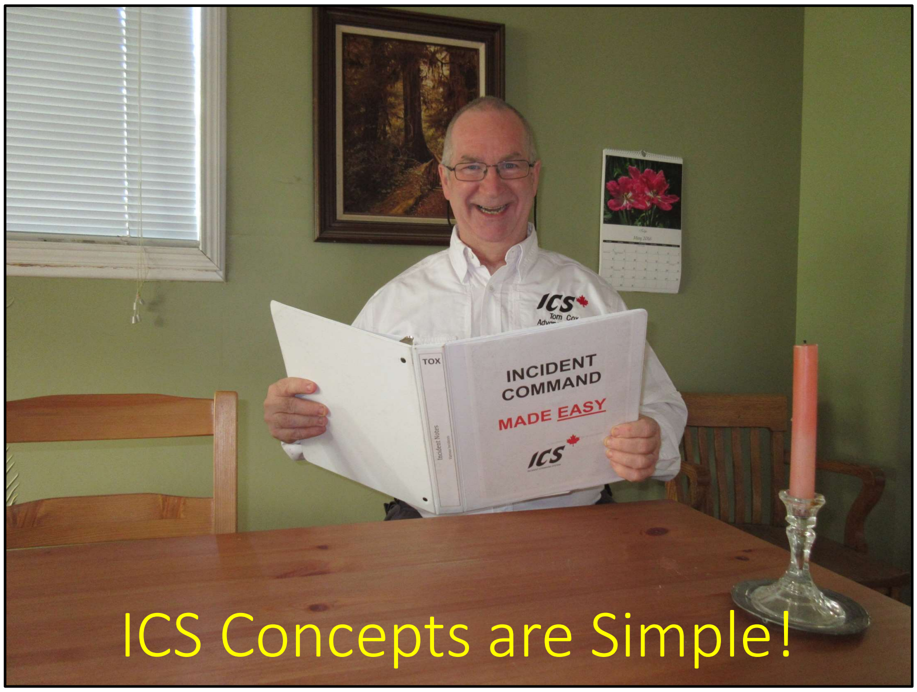
- You've had a long day, you've heard it all, and have been sitting all day.
- I love presenting in the last spot – the diehards stay, I get to wrap up the conference, and no presenter gets to disagree with me in the next session!
- My job is to make this last session worthwhile, make it relevant, and make it worth staying.
- I am going to give you some theory of ICS, application of ICS, and understanding of ICS in disasters.

Tom Cox, in role of acting field officer in High River, 2013. This was the epicentre of the costliest flood in Canadian history. I was on-scene, providing ICS advice, for roughly two weeks.

- I am Tom Cox, VE6TOX, I've been an amateur radio operator for about 20 years.
- I am the Senior ICS Consultant for the Alberta Emergency Management Agency and a senior instructor trainer with ICS Canada – I have taught over half the instructors in Canada.
- I have presented at multiple emergency management conferences across the United States on topics such as Communications Failures, Disaster Characteristics, Incident Command, the Failures of Lessons Learned, and Exercise Design.
- I have been at multiple Type 2 and Type1 Incidents, both in the Field at the Provincial/State level.
- Alberta has had 5 of the top 10 costliest disasters and we had the top 1, 2, and 3, weather disasters in Canada for 2020.

Comm Academy – A picture from roughly 2006

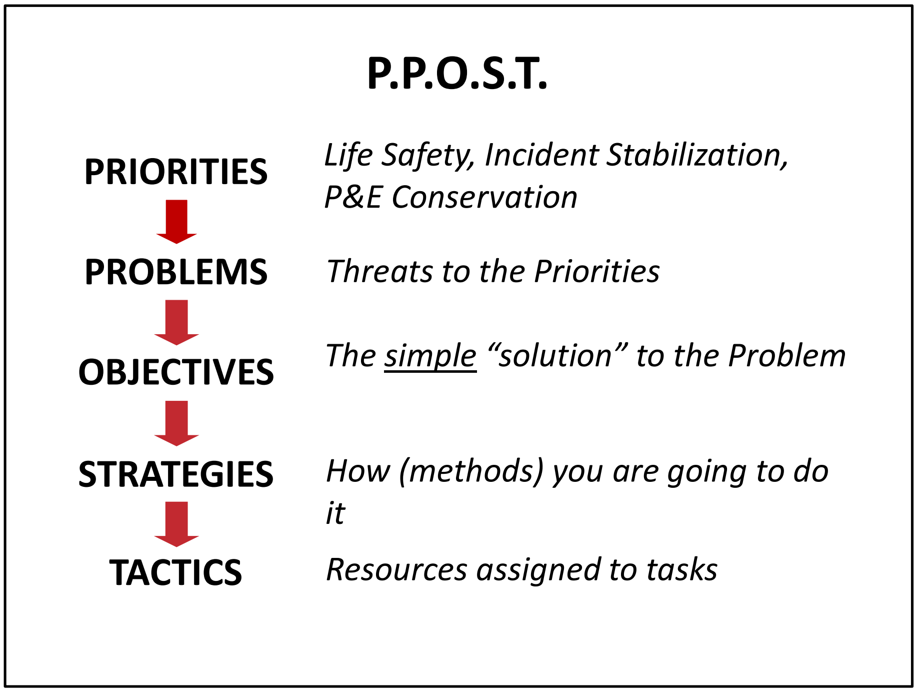
- You have no idea what you have here with Comm Academy!
- Marina Zuetell and the organizing committee have brought in some of the best speakers for years.
- Many of the presentations are up on the website in the archives – they are worth going back and checking!
- I got my start here by listening to William Lokey, who was with FEMA, who inspired me, gave me understandings that I have used through my life, and exposure to other experts, other experiences, and other ways of thinking about things. I cite Lokey's observations and points in many presentations right up to the present. You have world-class speakers here.



ICS Concepts are Simple!

Many of the concepts are simple – we tend to over-think them.

- I can’t teach you ICS in 45 minutes. I am assuming you have at least I-100 and I-200. If you don’t, you need to pursue that.
- I will just be giving a few ICS tips.



P.P.O.S.T.

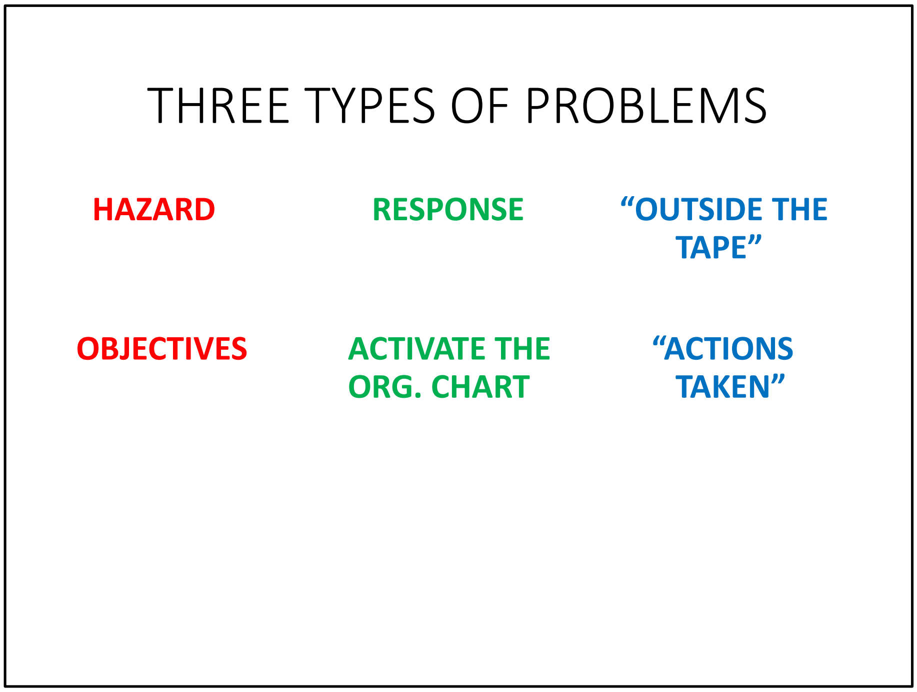
PRIORITIES	*Life Safety, Incident Stabilization, P&E Conservation*
PROBLEMS	*Threats to the Priorities*
OBJECTIVES	*The simple "solution" to the Problem*
STRATEGIES	*How (methods) you are going to do it*
TACTICS	*Resources assigned to tasks*

To Understand ICS in disasters, you first need to understand ICS (ICS is simple)

- Canada – very close to U.S. ICS but…there are differences!
- Formal vest colours. ICS Canada uses standardized coloured vests right across the country. This is not part of ICS doctrine, but has been a tremendous help on Incidents where you don't know peoples' names, you don't know the layout of the ICP, and you don't know what positions are filled, but you simply look for the appropriate vest and you integrate into the response almost immediately.
- PPOST (Priorities, Problems, Objectives, Strategies, Tactics) is like the FEMA Objectives/Strategies/Tactics, but provides greater direction and clarity to setting the Objectives.
- Priorities d
- The three Priorities are the same.
- "Problem" refers to a specific threat to one of the Priorities. Everyone has problems (spouse, finance, weight) but only threats to the three ICS Priorities are Incident-appropriate Problems. They are the reason we must respond.
- Objective is the simple solution to an Incident Problem. It is not SMART. SMART throws people off because anything can be made SMART. You have to have an

Incident-appropriate Objective first, then make it SMART. Making inappropriate objectives SMART is just a waste of time.

- Strategies are generally “Plan A” and “Plan B”. Plan A is always the fastest, safest, most efficient, cost-effective way to achieve the Objective.
- Tactics refers to the people and equipment. Changing people is not a new Strategy – police knocking on doors, fire knocking on doors, public works knocking on doors is still the same Strategy.



THREE TYPES OF PROBLEMS

HAZARD	**RESPONSE**	**“OUTSIDE THE TAPE”**
OBJECTIVES	**ACTIVATE THE ORG. CHART**	**“ACTIONS TAKEN”**

ICS solves problems.

- It provides a methodology to solve any problem, anywhere, any time.
- But there are two questions to start: What is the problem, and whose problem is it?
- Three types of Problems – understanding the three different types of problems and the three different solutions reduces debate and speeds up the response.

- The impacts of the hazard occur before any response occurs. The threats to the three ICS Priorities require Objectives to remove the threat.
- The arrival of the responders brings a whole new set of problems (small or large often depending on the size of the response). These problems are not “why you must respond” and do not require a collective effort; they are “solved” by activating the appropriate box on the ICS organization chart or the box above it.
- Any other problems are usually not the responsibility of the Incident Commander and response. This may include impacts outside of the incident site, threats to other priorities (economy, business reputation, insurance, political). These problems are never ignored, but they are not the responsibility of the Incident Commander to solve. They should be noted on the ICS form 201 and sent to a more appropriate entity to resolve.

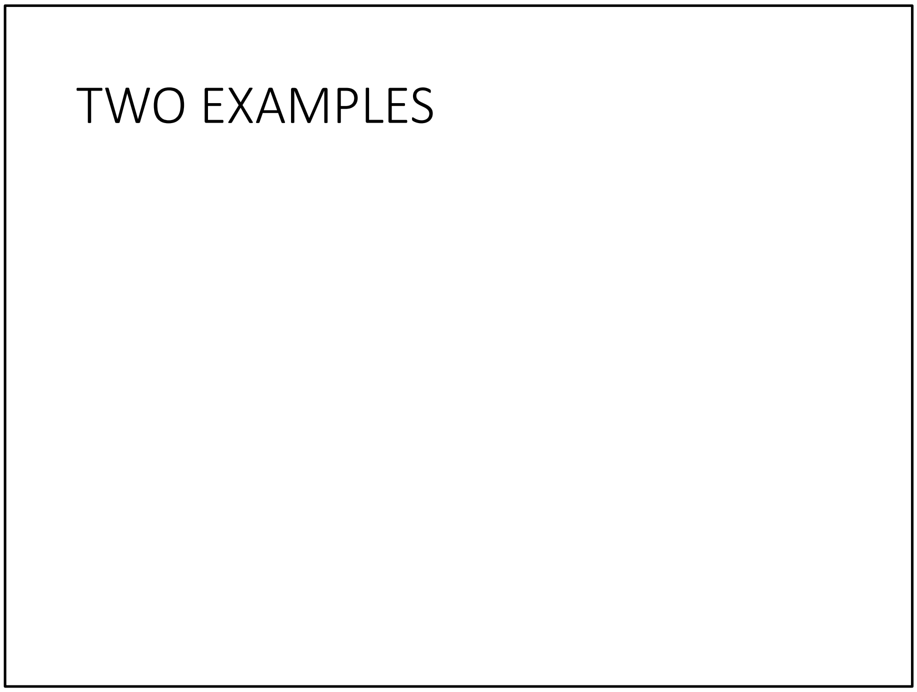
EVENTS AND ACTIVITIES

- Objectives deal with threats to the Priorities
- An event is never run if there are threats to the Priorities
- The purpose of an event is not “Fire, Police, EMS”
- Events have Activities. Things to see and do.
- Safety mitigation can only be considered once you know what the activities are!

Events do not have Incident Objectives – they have Event Activities. They have nothing to do with the three ICS Priorities. We don’t attend a concert or field day “to be safe”. We attend expecting to be safe.

If you think of pre-planned events are requiring ACTIVITIES of “things to see and do”, rather than Incident Objectives, you will have a better understanding of how to “Use ICS to run a pre-planned event”.

Safety is not ignored by describing pre-planned events in terms of “Activities”. But safety exists at all times (before, during, and after an event). It exists when you cross the street or drive a car or go out in bad weather. You do not stand up an Incident Command System or response for safety – you identify the risks and mitigate them down (crosswalk and reflective clothing / seatbelt and speed limits / parkas and rain gear).



TWO EXAMPLES

We need examples of “successful ICS”. There are too many examples of “ICS gone wrong”. If we don’t provide good examples, people may think that there is no use trying to do ICS!

Preparedness in the Park – What are your Activities?

- Edmonton 2005. Public Safety Awareness event – 50 tents, each with a table and two chairs. You can bring extra toys to display (bomb disposal units, command buses, helicopters").

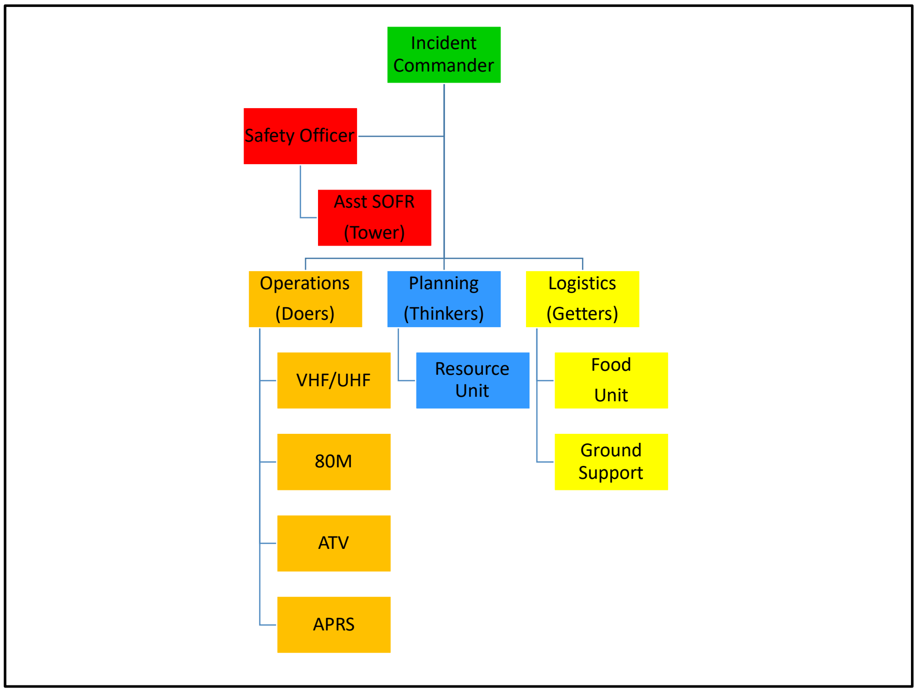
- We had done some ICS training (200 level), so now we decide to apply it.
- What activities would we like to show?
- VHF/UHF, 80M, APRS, Amateur Television – We put them in order of priority.
- An Objective without resources is called a "wish" – we would only demonstrate aspects of amateur radio that we had enough volunteers to do a good job.

- Along comes Pete Mueller from the City of Edmonton with two bag lunches.
- He sees a sea of Yellow vests.
- "How many people are here?" he asks. Resource Unit leader says 53!
- "But we don't have food for everyone." Food Unit Leader – we have food for everyone and even booked a group picnic spot to provide everyone with breakfast!
- "But you are taking up parking for the public!" Logisitics Chief: - we have off-site

parking and are demonstrating APRS on the two shuttle vans so you can see where they are and when they will be there to pick you up.

- “But you have a tower here!” Safety Officer says “We have a permit, a certified tower monkey, and assistant safety officer, and it is all clearly marked off.

- Pete’s final comment: “You guys know what you are doing!”
- That success led a better understanding of amateur radio and a willingness to integrate better within the emergency program.



- Incident Commander
  - Safety Officer
    - Asst SOFR (Tower)
  - Operations (Doers)
    - VHF/UHF
    - 80M
    - ATV
    - APRS
  - Planning (Thinkers)
    - Resource Unit
  - Logistics (Getters)
    - Food Unit
    - Ground Support

Example organization chart of “Preparedness in the Park”

Supply Unit not necessary as everyone doing each of the activities were responsible for their own supply.
As volunteers, a Finance Section was not considered, but a time unit might have been a good idea.
The Assistant Safety Officer was responsible solely for keeping the public away from the marked safety area around the tower (guy wires, trip hazards)

Applying ICS concepts. The application of ICS for the Prepare in the Park event gave us a greater understanding of the role and benefits of amateur radio in an incident.

Recycling Fire "A witches' brew"

- City of Edmonton said "Come when we call you." When will you call us? When communications fail. Do you see the problem?

- Activate the amateur radio station in the ECC. Begin the net and begin the callout of members.
- Activate the members – Standard first activity: make a cup of coffee. Slow down, think about what you are getting into, and check the weather/batteries/gear/work and family commitments.
- Staging area – must be available and moving in three minutes. Even if not a physical point, apply the principle. Do not check into the net unless you are ready to move!
- Information must be seen – white board. Three columns. What is the Incident,

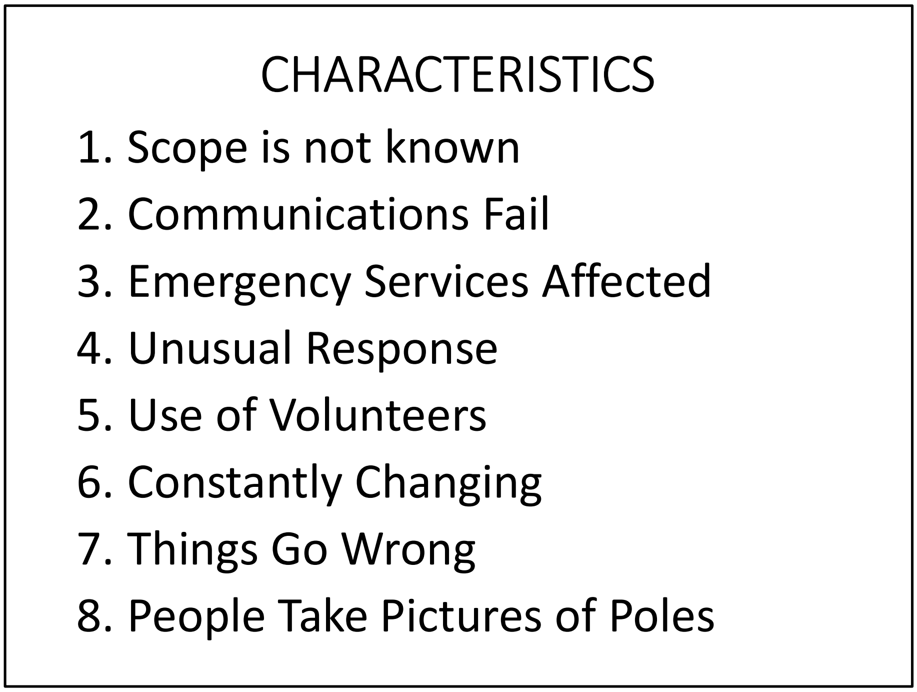
What is our response, What do you want the public to do. Spares and locations listed.

- Planning chief keeps coming in and looking at our updated board. “You are the only people who seem to know what is going on”
- Planning Section Chief says “I don’t even know which way the smoke is blowing!” What do you need? I need direction, volume, issues with the smoke. We got it in minutes, not hours.
- CANWARN (SKYWARN) Spot Weather forecast – wind about to change so I let the Plans Section Chief know. “Don’t even joke about that! We’d have to evacuate people!”
- Where are you getting this information? Weather office. “We would have been blindsided by this.”
- Next request from the city: “Can you staff the reception centre?” We are already at the reception centre! How can you be there, we haven’t even decided! Our reply: Spares can stage anywhere – our staging area is on frequency, not a place. It is either a mass casualty or an evacuation – for a mass casualty, we go to the hospital parking lot. For a potential evacuation, we go to the nearest evacuation centre outside the incident site that is most likely to be used. We already have two people at the site you were most likely to use.
- After the incident, “Could you have taken on one more role?” Yes – we always have spares. Could you have shadowed the incident commander? Yes! But that is a loaded question - Yes, I have someone great. The IC had two dead phones and two dead radios and didn’t even realize it.
- You guys know what you are doing.

DISASTERS

- Disasters are not just big emergencies. They are a different beast.

- I was teaching an I-400 course and the fire chief was crossing his arms and obviously not “buying” the concepts and techniques being presented. I asked him what was wrong and he said “When would I ever split an incident into two or do a complex incident structure?” I realized, he had never experienced a disaster and could not relate. So I threw on some slides and showed him what a disaster is. His arms uncrossed, his eyes got wider, and you could see he was trying to process what a disaster truly means.
- He finally said “I’ve never seen this, have I?” and I replied without thinking “And I hope you never do”
- Emergencies are threats to the three priorities that the emergency services have been created for; you hire for, train for, equip for, and have all the policies and procedures, strategies, and even the objectives for. The arrival of the emergency services makes things better, immediately.



CHARACTERISTICS

1. Scope is not known
2. Communications Fail
3. Emergency Services Affected
4. Unusual Response
5. Use of Volunteers
6. Constantly Changing
7. Things Go Wrong
8. People Take Pictures of Poles

- Disasters are different
- Aside from the increased numbers of fatalities and injuries and widespread damage to property, there are other characteristics.
- The scope is not known, Communications Fails, Emergency Services affected, Unusual response, Use of volunteers, scope constantly changing, things go wrong, people take pictures of poles (catch-all for typical other issues like insurance, livestock, re-entry, debris, donations).

http://groucho-karl-marx.blogspot.ca/2011_07_03_archive.html
The death toll from the EF-5 that tore apart south Joplin MO on May 22, 2011 has risen to 159 with the death of another injured victim in a Joplin-area hospital

So, where do you start with a disaster?

Amateur radio needs to understand our role and capabilities and the nature of disasters (not emergencies)

Total Communications Failures

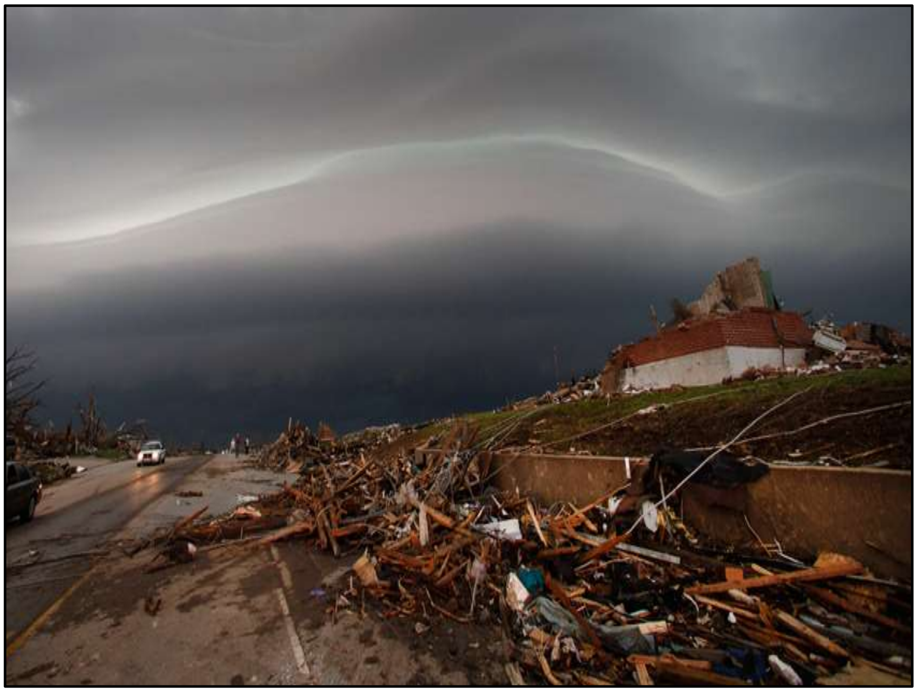
Communications modes may be down – we need to temporarily provide communications to key areas.   But we cannot do all locations and we cannot do it for long periods of time.   As well, communications will be the first thing restored.

Much of the infrastructure on the eastern half of Grand Bahama is destroyed.

https://www.cnn.com/2019/09/22/americas/east-grand-bahama-us-medics-and-survivor/index.html
In this crippled part of the Bahamas, US medics can smell more bodies than they can find
By Rosa Flores and Holly Yan, CNN
Updated 3:23 AM ET, Sun September 22, 2019
East Grand Bahama (CNN) It takes just seconds here to be overwhelmed by the stench of death.
More than two weeks after Hurricane Dorian wiped out entire neighborhoods, East Grand Bahama still looks like a war zone.
The carnage is so widespread that even police officers can't bear to see it.
"Police say they don't want to go there. It's too hard on them to go see their own people," said Patricia Freling, a Florida nurse who's volunteering in East Grand Bahama.
"They think there will be a lot of bodies. So we are preparing for everything."

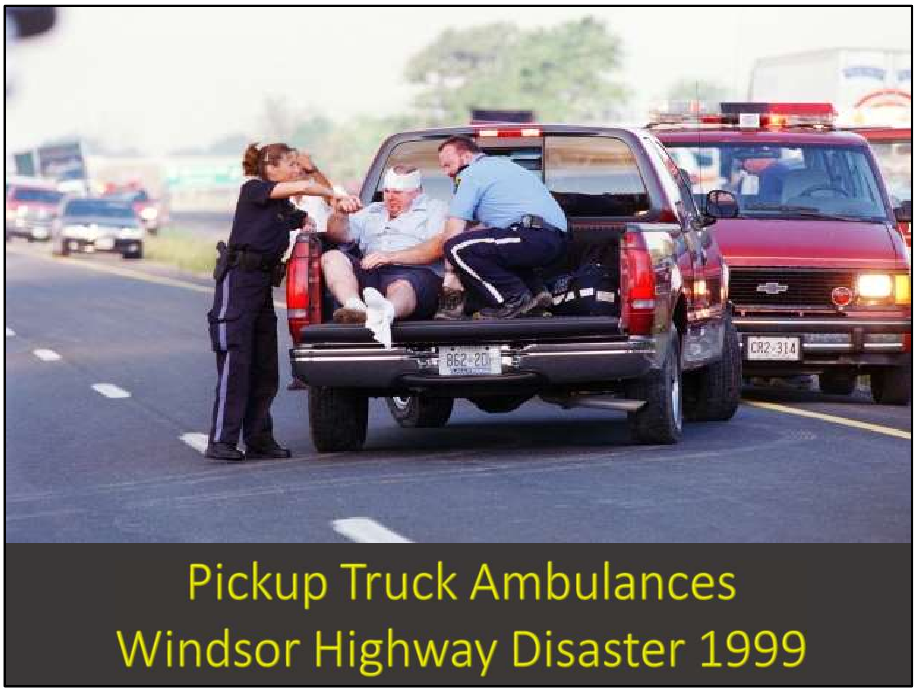
http://edmonton.ctvnews.ca/developing-story-slave-lake-residents-forced-to-evacuate-several-homes-and-buildings-burn-to-the-ground-1.644121#

This is the town office and Emergency Operations Centre for Slave Lake in 2011. If your EOC burns down, where do you go next and do you have adequate communications? Amateur radio needs to be there and flexible.



Joplin tornado – second storm coming.

You may not be working in “blue sky” conditions. This is the second storm to impact Joplin and one police officer was struck by lightning and killed.



Pickup Truck Ambulances
Windsor Highway Disaster 1999

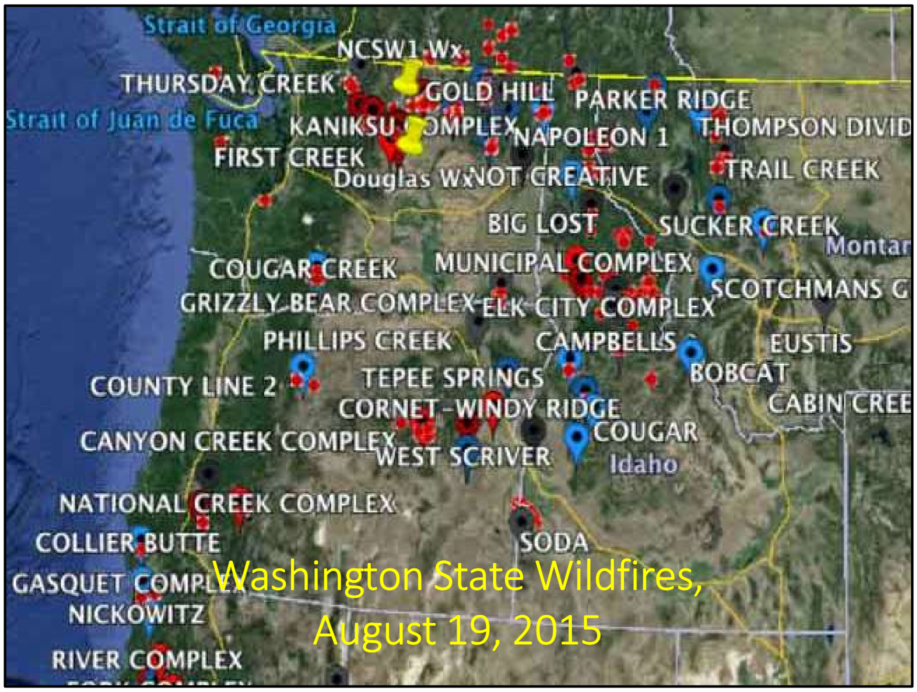
The impact to emergency services necessitates volunteer use and unusual strategies. This is where the emergency services have few or no communications!

http://www.calgaryherald.com/news/gallery+look+back+massive+highway+pileups+like+thursday+highway/8138350/story.html

Ontario 1999: An Ontario Provincial Police Officer, left assists an ambulance paramedic, right in the care of a victim from a multi-vehicle accident on the 401 just east of Windsor. Area farmers transported victims in the back of their pickup trucks to medical personelle along the 401.

Scene of the Sept. 3 1999 accident on Highway 401 that claimed eight lives.

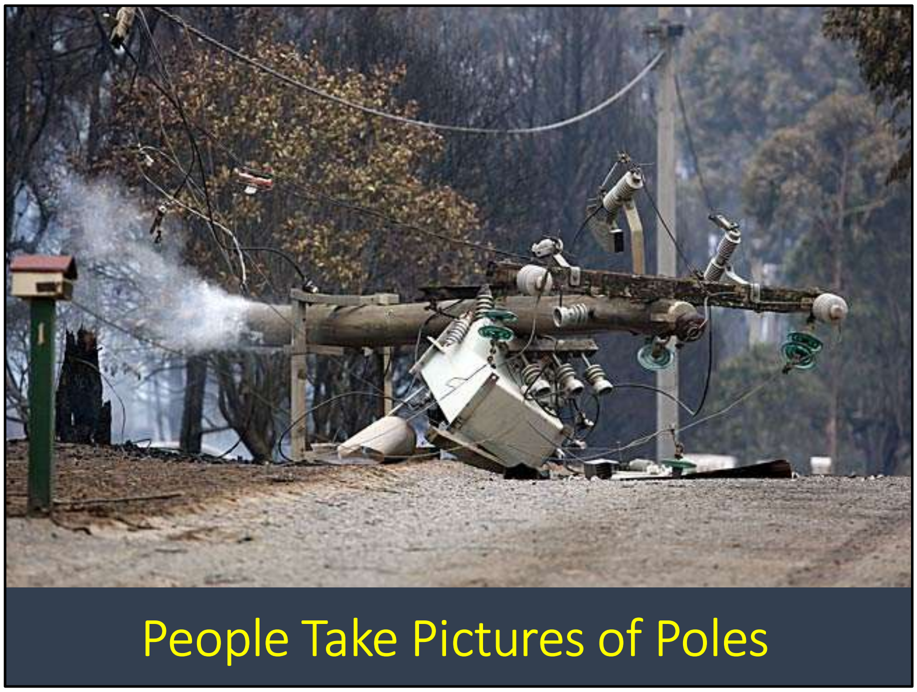
Example of unusual response – Joplin tornado 2011. Elephants were used to clear the roads to provide access for emergency vehicles until heavy equipment and tow trucks could be made available. Amateur radio must be aware that these are the location and times where emergency services will have no communications to the resources doing the work.



Washington State Wildfires, August 19, 2015

Map of wildfires in the West
Posted on August 19, 2015 by Bill Gabbert
www.wildfiretoday.com

Disasters may be widespread. At this point, large numbers of locations will require emergency communications assistance. You cannot be thinking that staffing one or two locations will be adequate.

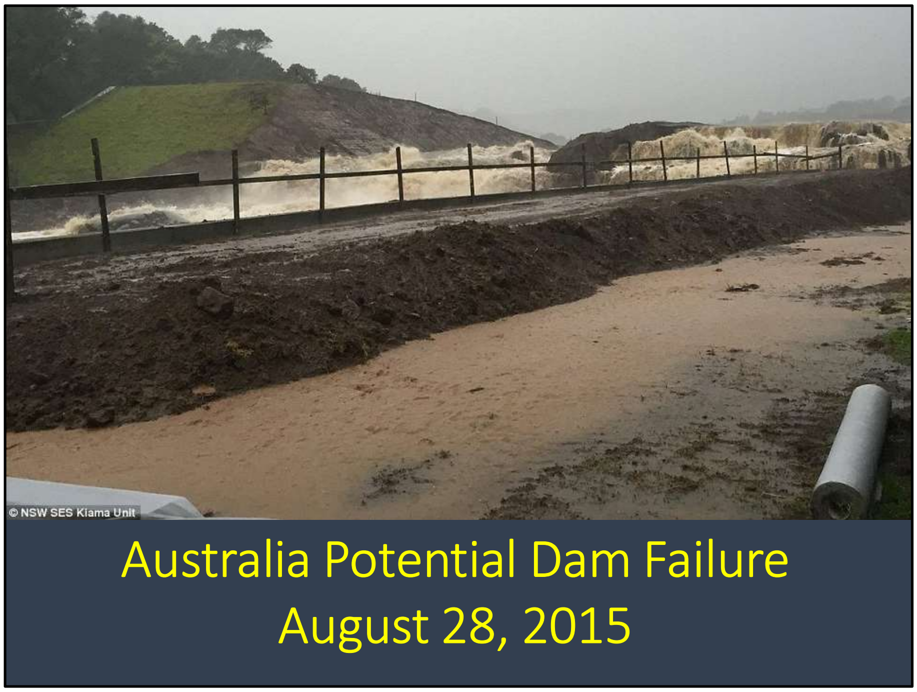


People Take Pictures of Poles

Fires ripped through the area of Pheasant Creek. Picture: Fiona Hamilton/ courtesy Channel 7 helicopter
Australia 2009 – 174 people dead

People take pictures of poles. What they are trying to show is:

- Communications is out
- Power is out
- Internet is out
- Nobody is fixing this – normally you would see works crews.
- There is a danger to people – yet no responders
- It implies other issues may be occurring, like use of volunteers, donations, evacuation/re-entry/recovery issues.

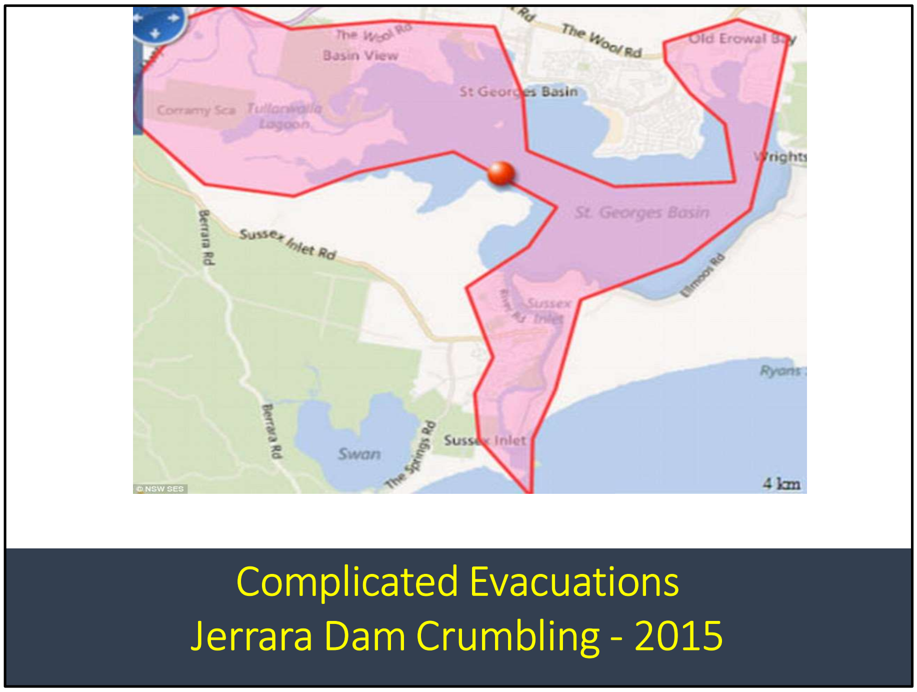


© NSW SES Kiama Unit

Australia Potential Dam Failure
August 28, 2015

Residents living downstream from the Jerrara Dam in NSW have been ordered to evacuate the area immediately due to parts of the dam falling away
SES Picture

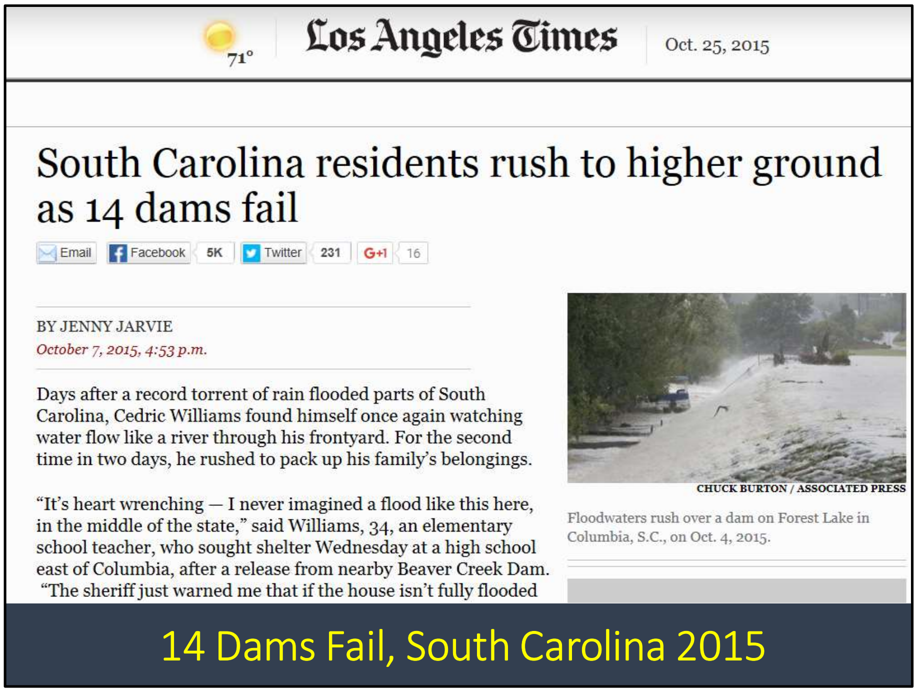
A dam collapse may be a serious threat to life and property.



Complicated Evacuations
Jerrara Dam Crumbling - 2015

SES warned locals in St George Basin and Sussex Inlet areas that they will be knocking on their doors between 7pm and 5am overnight

This evacuation is not a nice “1 mile radius” and it is occurring overnight. This immediately adds complexity to the response.



Los Angeles Times

Oct. 25, 2015

South Carolina residents rush to higher ground as 14 dams fail

BY JENNY JARVIE

October 7, 2015, 4:53 p.m.

Days after a record torrent of rain flooded parts of South Carolina, Cedric Williams found himself once again watching water flow like a river through his frontyard. For the second time in two days, he rushed to pack up his family's belongings.

"It's heart wrenching — I never imagined a flood like this here, in the middle of the state," said Williams, 34, an elementary school teacher, who sought shelter Wednesday at a high school east of Columbia, after a release from nearby Beaver Creek Dam. "The sheriff just warned me that if the house isn't fully flooded

CHUCK BURTON / ASSOCIATED PRESS

Floodwaters rush over a dam on Forest Lake in Columbia, S.C., on Oct. 4, 2015.

14 Dams Fail, South Carolina 2015

But now it is 14 dams.

These are not "potential failures" but actual failures!   Can you handle communications for fourteen dam failures?

14 Dams Fail, South Carolina 2015

But, while fourteen dams have failed, you have missed something….

62 More Dams at Risk of Failure,
South Carolina 2015

http://wtvr.com/2015/10/06/south-carolina-flooding-dams-breached-more-trouble-ahead/

14 dams failed, and 62 at immediate risk. While you focused on what you know, did you think about what you didn't know? Do you have any spare capacity for the next dam failure?

Over 1200 dams of concern.
South Carolina 2015

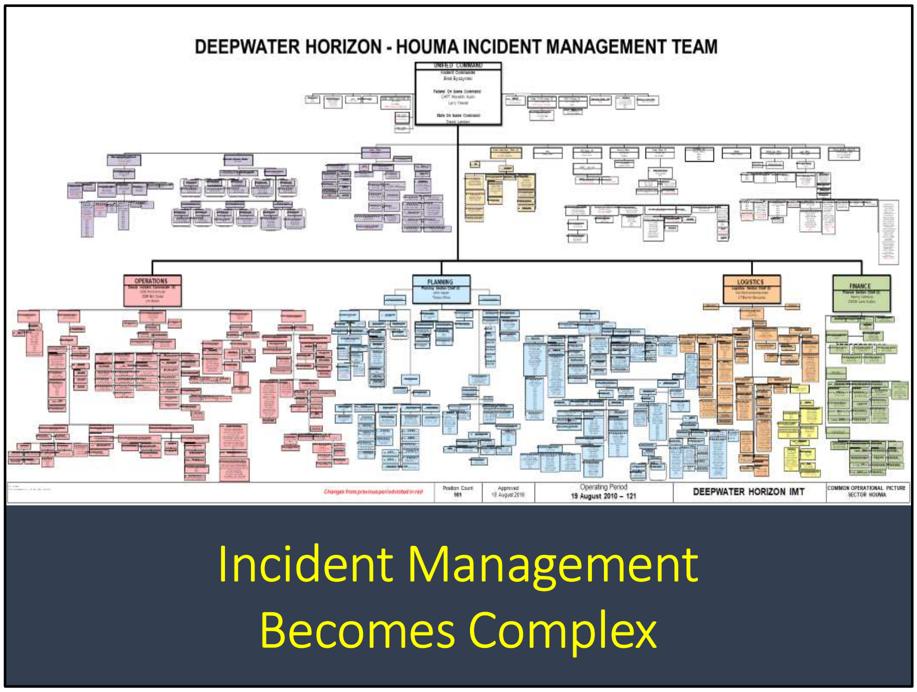
And 1200 more to worry about! Have you ever thought about how you would prioritize your scarce resources?

http://www.cbsnews.com/news/challenges-remain-south-carolina-recovery-floods/

October 11, 2015, 4:50 PM

Floodwaters rush over a diversion dam in Columbia, Tuesday, Oct. 6, 2015.
Despite an improving forecast, residents of South Carolina were bracing for a second round of flooding as rivers swollen from days of devastating rains make their way toward the Atlantic.
CREDIT: *Chuck Burton/AP*

North Carolina has the second-highest number of high-hazard dams – those where loss of life is likely if the structure fails – nationwide, according to 2013 federal data. The state has almost six times the number of high-hazard dams than South Carolina, where more than a dozen dams failed during historic rainfalls and flooding last week that killed at least 17 people.
Of the about 1,200 high-hazard dams inspected by North Carolina officials, 153 are listed as either "poor" or "unsatisfactory," assessments that require some type of action to repair the dam, reassess its risks or reduce potential dangers to the public.



DEEPWATER HORIZON - HOUMA INCIDENT MANAGEMENT TEAM

Changes from previous period noted in red

Position Count	Approved	Operating Period	DEEPWATER HORIZON IMT	COMMON OPERATIONAL PICTURE
981	18 August 2010	19 August 2010 – 121		SECTOR HOUMA

Incident Management Becomes Complex

981 positions activated in the IMT- According to box on bottom row of the chart.

Each position may be supervising dozens of individuals doing the work.

I love the BP Deepwater Horizon comment: “It is not a good day when the President of the United States appears on the Incident Organization chart!”

Multiple Priorities and Responses
Hurricane Dorian – Bahamas 2019

So, there will be multiple locations, multiple priorities, and resources will be scarce. This is your starting point.

An aerial view of damage caused by Hurricane Dorian is seen in Marsh Harbour on Great Abaco Island on September 4, 2019, in Great Abaco, Bahamas. Dorian struck the islands as a Category 5 storm, and was responsible for at least 60 deaths and more than $3 billion in damages—the worst natural disaster to ever hit the Bahamas. #

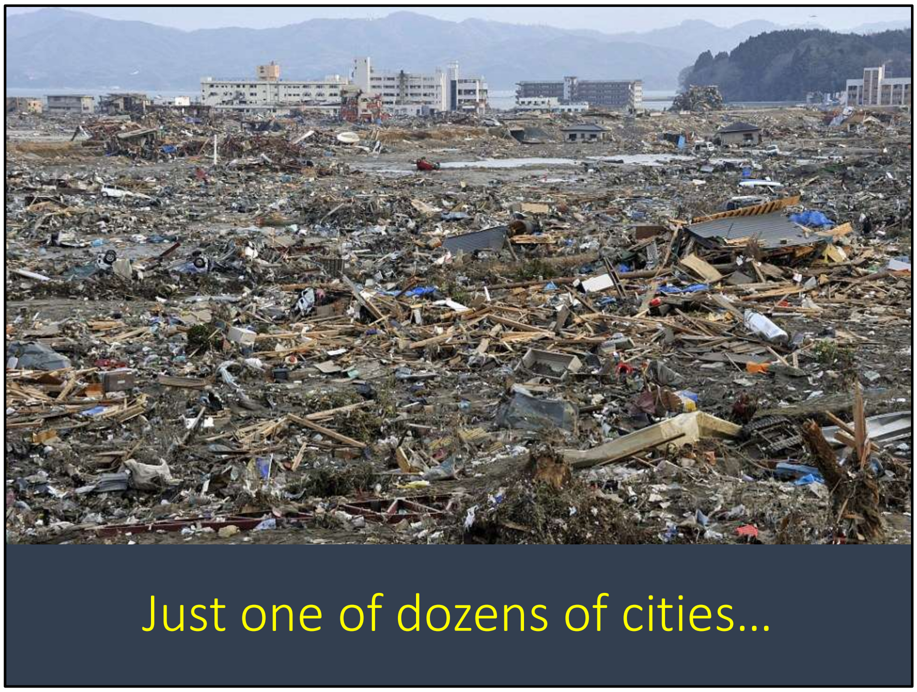
Scott Olson / Getty

https://www.theatlantic.com/photo/2019/12/photos-decade-2010-2019/603817/

NOW THINK BIGGER: “TYPE 0” INCIDENTS

But event may be even bigger.

These are what I call “Type 0” Incidents. Bigger than Type 1 Incidents, they have a larger degree of complexity than even a disaster. These are the ones where there is no government, there is no housing, and people may never live there again. Think Pompeii.



Just one of dozens of cities…

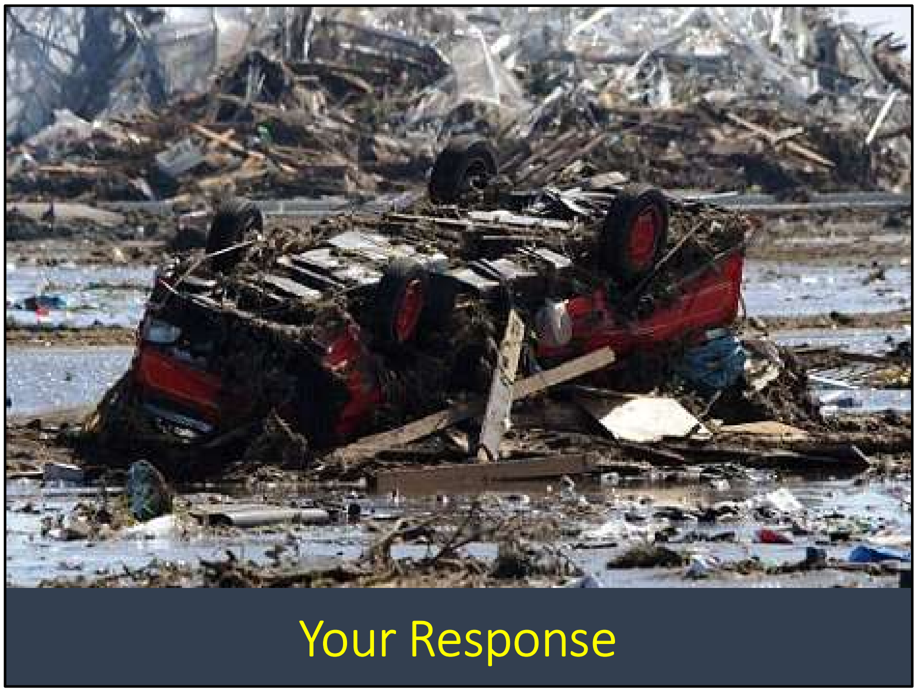
The Japanese earthquake and tsunami would be an example. Government may cease to exist.

http://www.dailymail.co.uk/news/article-1366126/Japan-earthquake-tsunami-Chilling-echoes-Hiroshimas-destruction.html

Wiped out: The vast of expanse of broken homes in Minami Sinraku is almost hard to distinguish from the scene in Hiroshima decades earlier

Japan Earthquake Fires 2011

The emergency services could not put out all the fires started by the earthquake.

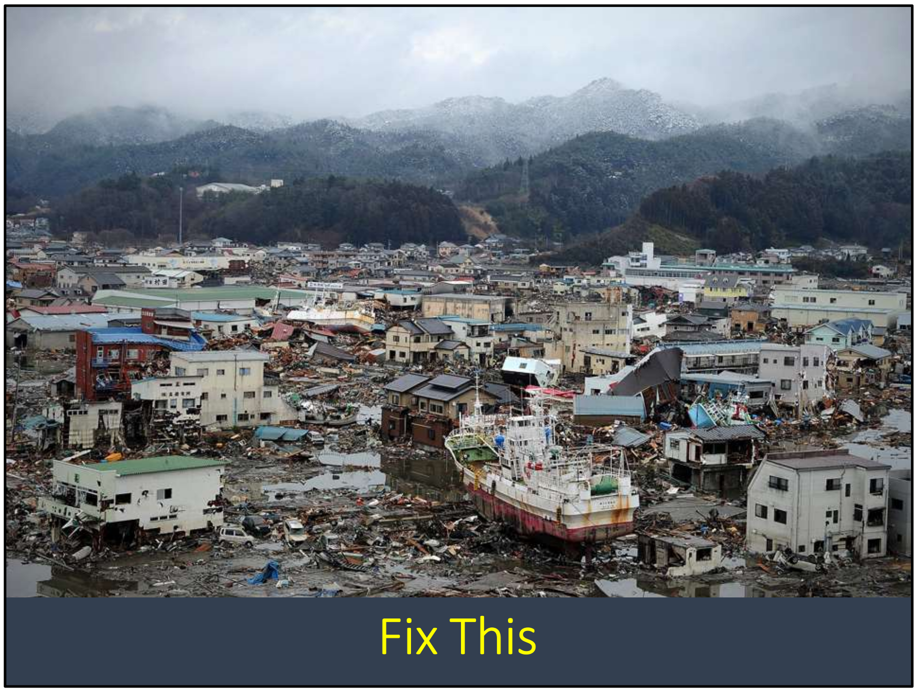


Your Response

The emergency services that responded to the earthquake were destroyed by the tsunami that hit next.

Right one of the emergency vehicles called out to fight gas fires in Minamisoma. Getty Images

https://www.dailymail.co.uk/news/article-1366126/Japan-earthquake-tsunami-Chilling-echoes-Hiroshimas-destruction.html



Fix This

You need to organize a response to this.

Damage caused by the March 11 earthquake and tsunami is seen from a hill overlooking the city of Kesennuma on March 16. (Philippe Lopez/AFP/Getty Images) #

Fix This

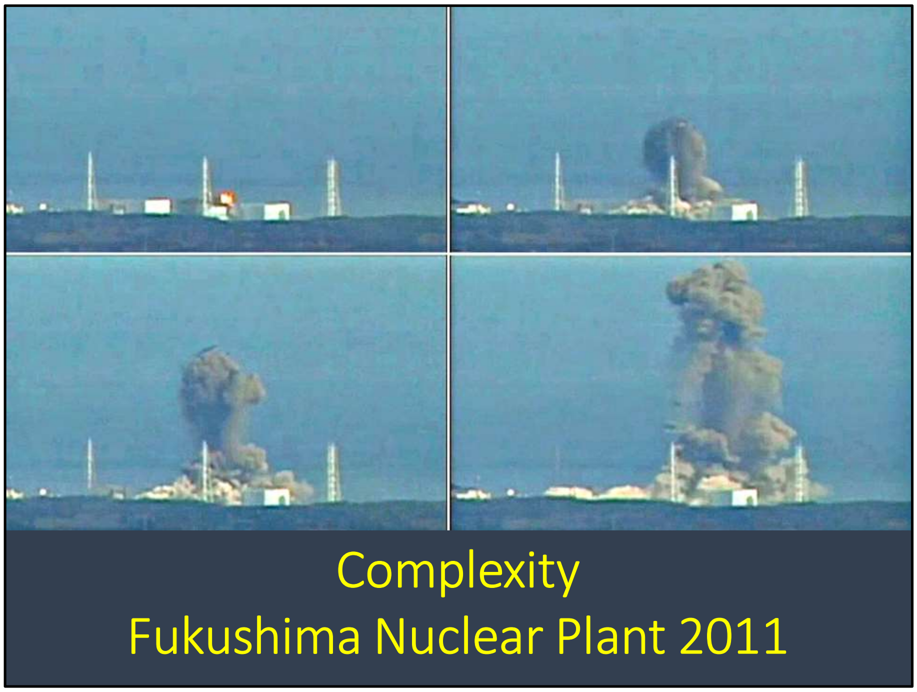
And you are not getting help from normal mutual aid sources.

REUTERS/Kyodo
Otsuchi town, Iwate Prefecture in northern Japan, after an earthquake and tsunami struck the area, March 14, 2011

Snow after the Tsunami

No power, no communications, no gas, and now snow.

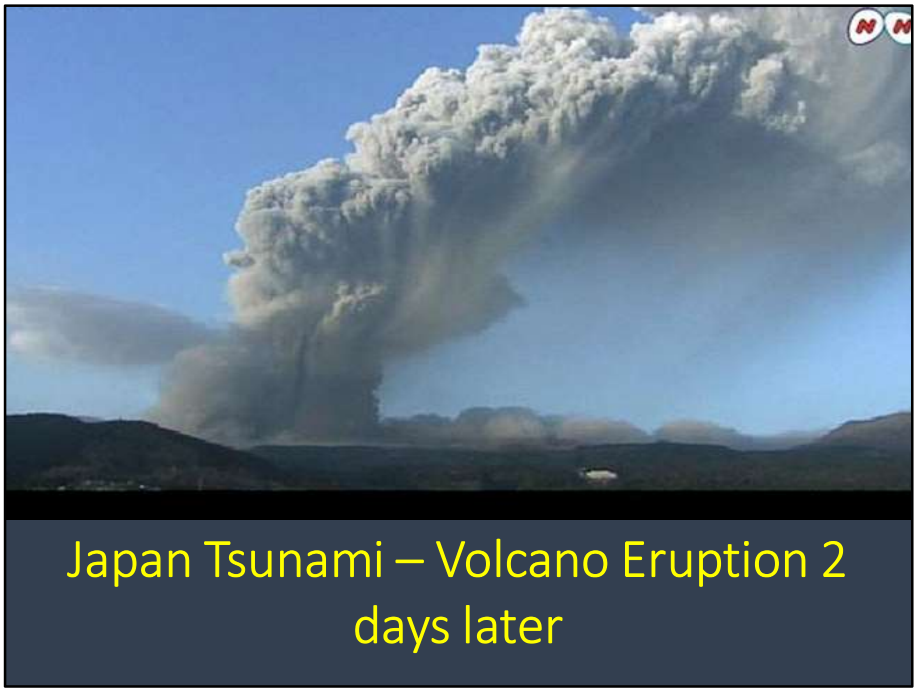
Vehicle headlamps illuminate the disaster area of Yamada town in Iwate prefecture on March 16. The official toll of the dead and missing following a devastating earthquake and tsunami that flattened Japan's northeast coast has topped 11,000, with 3,676 confirmed dead. (STR/AFP/Getty Images)



Complexity
Fukushima Nuclear Plant 2011

Cascading events – remember the comment about Pompeii?   Nobody will be able to go back to Chernobyl or Fukushima during our lifetimes.

Still images from video footage March 14, 2011, shows the explosion at Fukushima Daiichi nuclear power complex. A hydrogen explosion rocked a crippled nuclear power plant in Japan on Monday where authorities have been scrambling to avert a meltdown following Friday's massive earthquake and tsunami. (NTV via Reuters TV/Reuters) #



Japan Tsunami – Volcano Eruption 2 days later

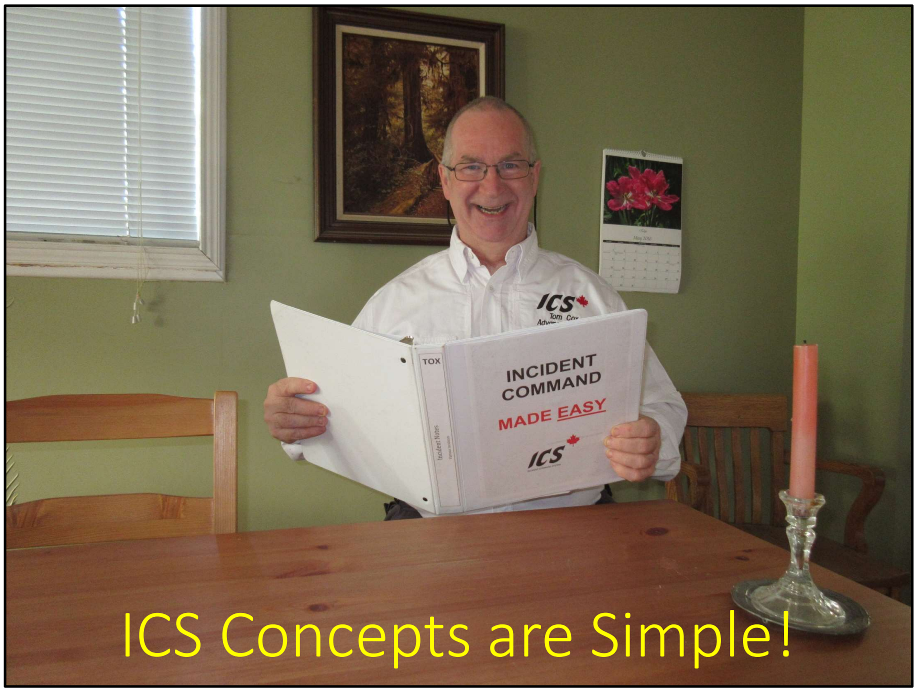
Just when you think it can’t get any worse….

Hundreds of people were forced to flee when the Shinmoedake volcano on the southern island of Kyushu began spewing ash and boulders on 14 March 2011. Japan's Meteorological Agency issued a warning on Sunday that the volcano resumed activity after lying dormant for a couple of weeks. Picture: NHK

So, where do you start?

In a disaster, the same ICS principles that you started with for pre-planned activities and Incident response still apply. Your I-200 is still good enough to do the following:

Doing anything is better than doing nothing.
Establish command – leadership is infectious. People follow leaders.
Start with what you can do, not what you wish you could do.
Use the ICS Priorities – they are set by society, so society will generally follow them.
Be methodical – do a good job (and don't worry about a great job)
Work from where you are out, eventually you will start to meet up with other responders/leaders
Use the 14 principles – if you have practiced them, they will come more naturally.
Keep learning!



ICS Concepts are Simple!

The initial concepts of ICS are simple:

Priorities direct the response.

Management by Objectives – is the engine that drives the response.

14 principles – makes the response more efficient and effective

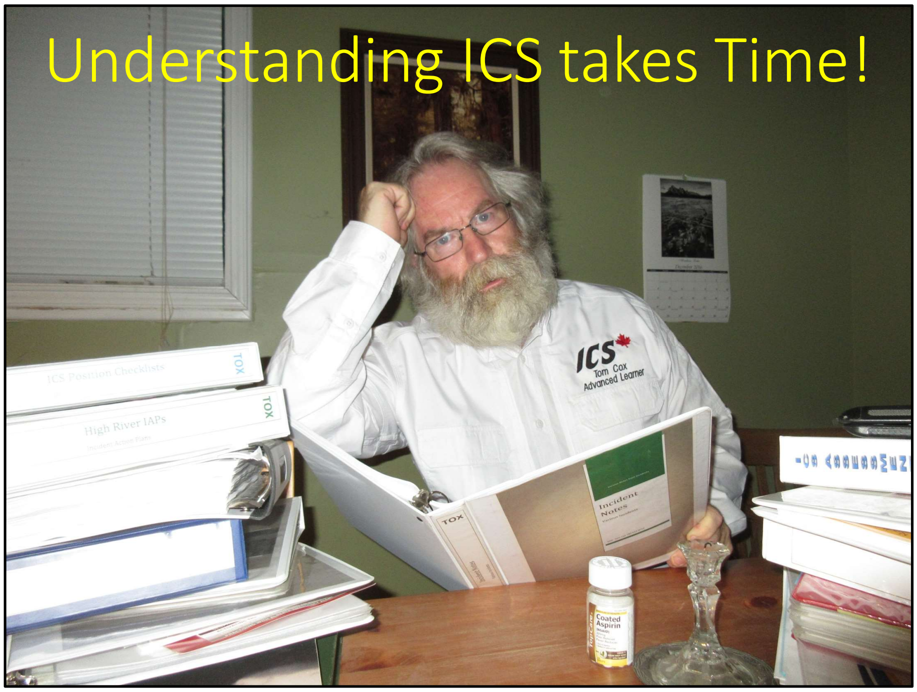
Doers, Thinkers, Getters, Payers – divide the workload and don’t try to do everything.

Planning Cycle – critical for multi-day incidents. It is not just about being ready for today, but being ready for tomorrow by planning.

FOR A FURTHER UNDERSTANDING OF ICS CONCEPTS

www.icscanada.ca/resources

The ICS Canada website has some great resources here for those wishing to teach ICS. There is a caution – the resources are primarily directed to instructors who will already know the concepts, but It may be helpful for those trying to learn ICS.



Understanding ICS takes Time!

Don’t expect to understand ICS immediately.

You need to work with it. The more you use it, the more useful it becomes.

Thank you!

Thanks to Marina Zuetell and this years’ organizing committee!